

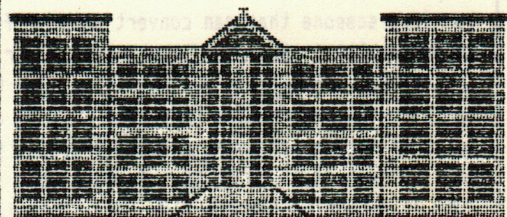
# Madison Atari User's Group Newsletter

P.O. BOX 56191, MADISON, WI 53705

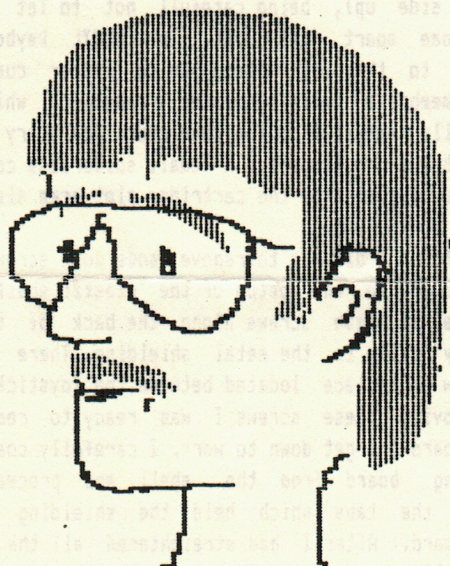
**VOL. 2, NO. 11**  
**November, 1985**

**TUESDAY, NOV. 12**

## **MONTHLY MEETING**



**WEST HIGH AT 7:00 P.M.**



## **FROM THE CHAIR**

**By Kurt Grittner**

Here I am staring at my ATARI-writer trying to think of something intelligent to say. All it does is stare back at me, and I think IT is winning. I'm just in a bad mood because I got a letter from the IRS today. When I opened the letter I got a paper cut that bled all over. (Who says you can't get blood from a stone?)

This issue contains the RAMBO/TERMINATOR XL hardware "how tos" and wherefores that I'm sure you will all want to read curled up in front of the fire just before going to bed. We now have the club's 800XL upgraded to 512K and running four (count 'em) RAM disks. If the communications SIG could get a BBS running on this machine, it would be a very nice bulletin board. I was also going to include an

article describing a single patch to DOS 2.5 that will run on any of the various ATARIs, including our modified ones; BUT I turned up some bugs while running it on the 256K machine. (It works fine on the 512K machine). I should have that whipped into shape in time for next month.

There has been quite a response from across the country to the RAMBO XL issue. Both Mike Redmond and I have gotten long distance calls from other users groups requesting printed circuit boards.

B. Daltons book stores in Madison have offered to give club members a sliding discount (based on volume) starting at 10% and going up from there. To get this discount, we need to print membership cards. More on this at the meeting.

I have gotten several requests from members for a classifieds column in the newsletter. Al Divine has come up with a form to fill out which we intend to hand out at the general meetings. If you have anything you want to put in the classifieds, fill out the form at the meeting and hand it back to Al Divine.

The 520ST continues to be the most talked about machine of the year. Rumors abound, and facts are scarce. I would like to see some firsthand articles in our newsletter about the 520ST (if anyone out there is bold enough to write one).



## RAMBO/TERMINATOR-XL ARTWORK

By Mike Redmond

We have included some circuit board artwork in this ish for building either the RAMBO XL or TERMINATOR XL. The board is dual purpose. In fact, if you look closely, it also includes some unlabelled connections so that you hardware hackers out there can build what we call the DEEP THOUGHT XL of up to 2 MEGA BYTES....(and we wonder why some people call us crazy).

The circuit board artwork is NOT in an adequate final form (the copper paths are very thin) and it is NOT scaled for simple reproduction. I recommend that local clubs attempt to find someone that can convert this stuff into a final, dimensionally accurate transparency for circuit board production. Within a month, folks in MAAUG will have accurate transparencies that they may be willing to sell to some interested users groups. Indicate your interest by sending a letter to MAAUG. I doubt that MAAUG will get into distributing the board on any nationwide scale.

Please note that things differ a bit from info in Paul's construction article. Multicharacter on-board labels have been converted to single character labels with an external legend. The chips are not marked on the board in this artwork. The board also reflects a change in the design for the TERMINATOR XL circuit. See the TERMINATOR construction article for details.

ENJOY!...MCR

## MY ATARI 800-XL HAS H3 BEEN RAM-BOED?

By Paul Schnettler

I was thinking of buying another disk drive for my 2 year old 800XL. We all know how handy an additional storage device can be. Well, the money just wasn't there so I had to come up with another way...

After reading an article which appeared in BYTE magazine I became interested in the idea of upgrading the RAM which is resident inside the 800XL. The article described a way in which any brave 800XL owner could make a few modifications to their machine to get a quarter of a mega-byte of RAM. Well, that got me going and I'll tell you how I turned an ordinary 800L into a super "RAM-BOED" 800XL. You can do it too...

First, credit where credit is due, Kurt Grittner and Mike Redmond got this whole project off the ground, their help was invaluable. Dave Mullenix fabricated the PC board, and Al Divine did the artwork for the prototype PC board. Thanks again guys!

I eagerly awaited the arrival of all the necessary parts and chips that I needed for the upgrade. The RAM chips and a few low power TTL chips, a DIP header socket, a few chip sockets, and a couple of caps and some wire. The only tools required were a low power soldering iron, a pair of small pliers, a small phillips screwdriver and a pair of steady hands. Oh yeah, don't forget a peice of tin foil for covering the table top that you work on, we don't want to ruin the new RAM chips by static discharges.

After I got all my stuff together it was time to open up the computer. I turned it over and removed the 6 phillips screws and carefully flipped the machine back over (keyboard side up), being carefull not to let the two halves come apart just yet. The 800XL keyboard is connected to the main board by a rather cumbersome flexible membrane cable/connector arrangement which must be carefully removed from the connector. Don't try it with anything but your fingers.. A small solderless connector has to be unplugged from the cartridge slot area also.

The next thing I did was to remove some more screws which held the board to the bottom of the plastic shell, there were three of these screws along the back of the main board very close to the metal shielding. There was one more screw to replace located between the joystick ports. After removing these screws I was ready to remove the circuit board and get down to work. I carefully coaxed the snug-fitting board from the shell and proceeded to straighten the tabs which held the shielding to the circuit board. After I had straightened all the tabs I took a small screwdriver and removed the shielding. There it was, the guts of my 800XL. It didn't seem like there was enough room to fit anything more in there, but where there is a will there is a way. I was willing to go on.

I wanted to check the ANTIC chip to make sure I could modify my machine, so I checked chip U7, the video controller. This chip had to have the number CQ21697 to work correctly. I was in luck -- there it was.

NOW came the TRICKY part! Changing the RAM chips. I made sure the foil was under everything that I was going to touch with my hands during the rest of the procedure, including the board and the memory chips. I carefully pried the eight RAM chips from the sockets located along the left side of the board. I also removed the chip from the socket labeled U27 just to the right of all the RAM chips. Just behind U27 is a small 3 inch square area with relatively few parts. This is an area where the PC board would fit nicely.



I replaced the existing 64k RAM chips with the new 256k RAM chips, again being extremely carefull not to ruin the chips with static discharge. I took the old chips and repacked them in the tube in which the new RAM chips had arrived. There was no use in trashing them since they might be usefull later. Next it was on to the fabrication phase.

I had to assemble the PC board, which was a bit tricky in it's own right, since the board is so small. The first thing to do was to cut the DIP header into two halves and trim away almost all the plastic from the header part. once this was done I could solder the header pins to the pads on the board marked 'socket'. There are eight pins on each side of a chip and since there are two sides on each one it was a bit tedious (I've got to cut down on coffee!). Once that part was done, all the rest of the soldering was easy. I trimmed the header pins from the top side of the board (the non-copper side), and then soldered the IC sockets to the board. These sockets are optional but I wanted to be able to remove the chips easily in case of failure. This might be a problem in later models of the 800XL with different types of shielded cases which don't have the required height. The next thing I needed to attach to the board were a six wires and a jumper between two points on the board. Next I plugged the chips into the sockets assigned to each of them (they are clearly marked on the board) and soldered the wire coming from the pad marked RAB to the right side hole of resistor marked R32. This hole should run to pin 1 of each of the RAM chips. You will have to desolder the right side lead from R32 (even though it works without it), to be totally legal. (You should solder a 33 OHM resistor into this hole and then solder the RAB wire to the dangling end of this resistor...M.J.R.). Wrap the R32 resistor with some tape or remove it completely. The other five wires must run to the B port of the PIA chip which the 800XL doesn't use (the 2nd two joystick ports which the old 800's have built in). I had to rig up a connector to plug onto these pins made from a dip socket cut in half and trimmed to 5 holes for the five wires. The PIA chip is located at U23. It must be carefully pried from it's socket. Once the chip (labeled 6520) was removed, pins 12,13,14,15, and 16 had to be bent up so they stuck straight out and away from the chip. Finally the chip was carefully pushed back into it's socket.

The last part of the modification was connecting the wires to the IC socket correctly and plugging it onto the pins coming from U23. The correct pin connections are:

from: PB2	to: pin 12
PB3	pin 13
PB4	pin 14
PB5	pin 15
PB6	pin 16

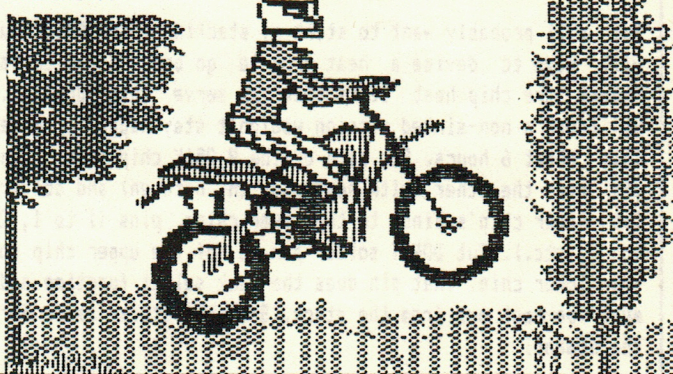
Finally I was done soldering and the only thing I had left to do was plug my new PC board into the empty socket at U27 and connect the modified socket to the PIA chip at U23. I was now ready to see if I would blow anything up!

The quickest test would be to see if the machine at least came up in BASIC since it has its' own internal test routine. I plugged the power in and turned on the monitor, and then I switched the board on and patiently waited for those wonderful words "READY"... And there it was. I had done it! Now all I had left to do was to carefully reassemble the RF shielding over the board sides while making sure the new PC board was not going to short circuit on the metal covered shielding. Everything fit snugly back into the computer's shell and I only had to carefully re-attach the keyboard cables before I was ready to finally close up the casing of what was and would remain a normally operating 800XL (until I got Kurt Grittner's new RAMBO-XL software).

Actually, the computer would act like a 130XE when the RAMDISK.COM file was loaded from DOS 2.5.. This is exactly what the extra board is supposed to do-- access the extra memory and use it for a RAM disk. But isn't something fishy here? The 130XE only has 128k of RAM and our upgrade has twice that. The 256k RAM I installed couldn't be used fully with an ordinary version of DOS 2.5. The new, special patched version was being developed by K.G. and so I had to wait.

Well the wait was not long and it was worth it. Now all I do is load up DOS 2.5 and I get drive 1 with 707 free sectors. In addition I have a drive 7 with 707 free sectors and also a drive 8 with 620 free sectors (it needs a few sector for some DOS files). Let's see now... thats 2034 free sectors to play with. I don't need another disk drive and I've got RAM disk space thats 50 times faster than a normal disk drive when it comes to copying and transferring files. The only disadvantage I might have is in making sure my files are saved to a disk or a cassette before I power down my computer (turn it off).

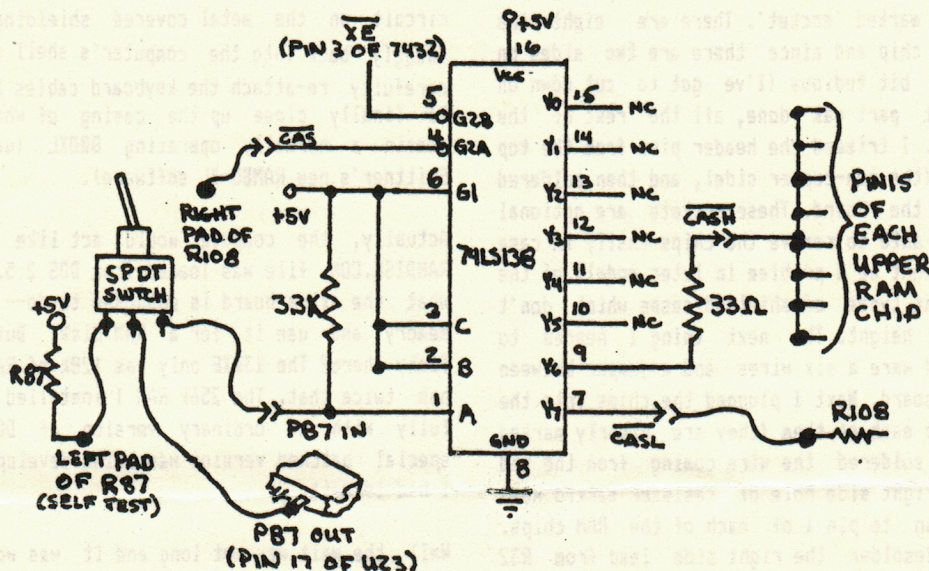
I understand a 512k RAM modification prototype has already been built. Wow! A half a mega-byte of memory to play with....who says the ATARI computer is nothing but a game machine...





## By Mike Redmond

Build up the complete board (with low profile sockets), including the optional 74LS138, 33 OHM and 3.3K resistors. I recommend using a chunk of light gauge, 6 conductor, stranded flat cable to connect all the PB signals. Bend out PB2 through PB7 on chip U23 (pins 12 through 17) and break off half a chip socket that can accommodate the 6 pins. Solder the first 5 socket pins to the PB2 through PB6 board connections. The 6th pin of the socket must go to the center position of a two way (SPDT) switch (this can be mounted near the left rear of the cabinet bottom). One of the ends of the switch must be wired to the PB7



1. 本公司之董事、監事、總經理及其他重要人員，均應具有下列條件：

(1) 具有中華民國國籍。

(2) 具有法律、經濟、會計、財務、管理、工程、科學或其他相關專業背景。

(3) 具有相當之專業知識及經驗。

(4) 具有相當之社會信譽。

(5) 具有相當之財務能力。

(6) 具有相當之法律常識。

(7) 具有相當之道德品質。

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lead out of the board. The other end of the switch must have a lead soldered to the left pad of R87 (where PB7 from the PIA used to go). Install the socket connector on the U23 pins.

Attach lead wires to the remaining connection pads on the board and install the board into it's socket (U27). Remove resistor R32 and solder one end of a 33 OHM resistor into the right R32 pad. Solder the RAS lead from the board to the "dangling" end of this resistor. Unsolder and lift the right side of R108. Solder the CAS lead from the board to the right R108 pad and solder the CASL lead to the dangling end of R108 (this is the lower bank select signal).

Now for the RAM stacks. Install the first stack in the U13 socket. Try to firmly attach (without soldering) the CASH lead from the board onto the bent out pin 15 on the upper chip. Also firmly attach a piece of light gauge, solid, insulated, easily strippable wire (I used wire-wrap wire)



to the same pin (this will be the upper CAS bus...make it long enough to reach the pin 15 of all 8 RAM stacks). Solder the 2 wires to pin 15. Install the next stack in U14 and solder the BUS wire to pin 15 of this stack. Proceed in this way until you've installed the last stack in U9. AND YOU'RE DONE!

Close up the box (if you can). You may be able to reinstall the shielding first if you are an electronics gymnast. It's tricky. To power up, you must have the TERMINATOR switch so the R87 lead is connected to PB7 from the PIA. Otherwise the screen will stare blankly back at you (while the self test goes nuts). As SOON as a screen with cursor appears, shift the switch into TERMINATOR mode and, OFF YOU GO.

Kurt Grittner has come up with DOS 2.5 patches that generate 4 RAMDISKS on the TERMINATOR (D5: through D8:). All are 707 sectors long. QUITE THE SYSTEM FOR A BBS OR ANIMATION SYSTEM!

And if that's not enough, get out your fans and heavy duty power supplies. The same technique can be used to stack up up to 8 sets of 256K chips (THAT'S TWO MEGA BYTES). To do this, chop the tie high paths from pins 2 and 3 of the 74LS138 and tie those select inputs to PA7 and PA6 of U23 (pins 9 and 8). Then pins 10 through 15 of the 74LS138 can be used to select (through CAS pin 15 on the RAMs of each

bank) 6 additional 256K banks. WARNING...SEVERE RAM MELTDOWN POSSIBLE! And, for software, you're pretty much on your own.

ENJOY (TO THE MEGA MAX)...MJR

## COMMUNICATIONS CORNER

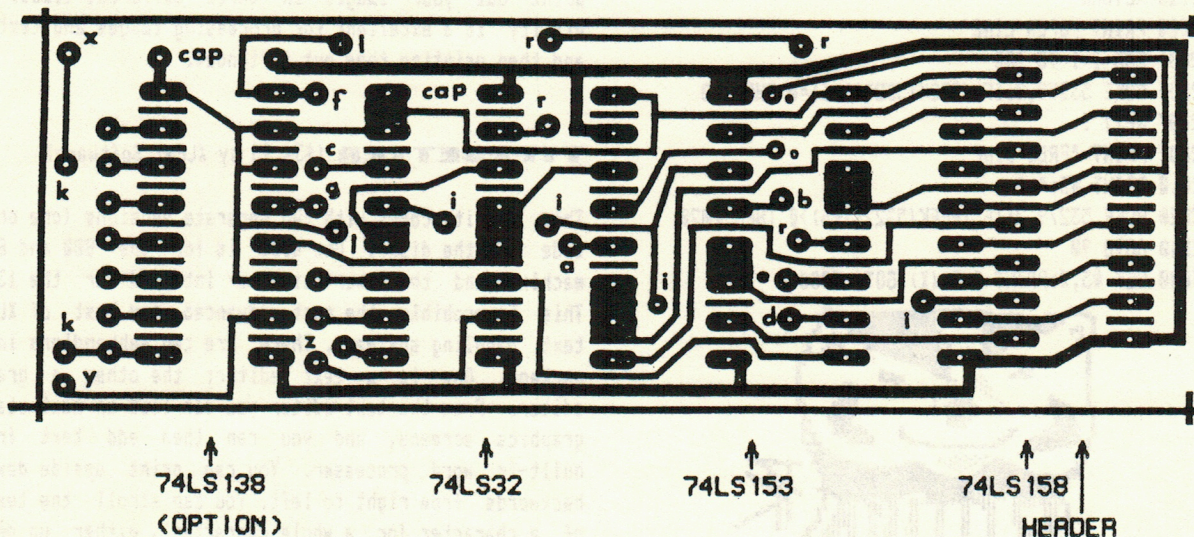
The following program although intimidating in appearance, is a pretty good (and short), modem program. It will work on almost any modem but you may be required to change the device name "R", depending upon the particular brand of modem you have. The program is one of those 'just lying around on a disk somewhere programs.

```
5 DIM IN$(100),IN2$(100)
9 XIO 38,#5,0,0,"R:"
10 XIO 36,#5,10,0,"R:"
15 OPEN #1,8,0,"E:"
20 OPEN #3,13,0,"R:"
30 XIO 40,#5,0,0,"R:"
40 PRINT #5;"ATE000V2S7=255S11=50"
50 GOSUB 500
60 PRINT "PHONE NUMBER-"
70 INPUT IN$
80 PRINT #5;"ATDT";IN$;",""
```

VERT. SCALE  
(.05" PER)

COPPER SIDE OF BOARD  
FOR RAMBO XL or TERMINATOR XL

HOR. SCALE  
(.05" PER)



A--PB2

D--PB5

Z--RA8

J->J = JUMPER

B--PB3

E--PB6

Y--CASL (OPTION)

K->K = 33 OHM RES. (OPTION)

C--PB4

F--PB7 (OPTION)

X--CASH (OPTION)

L->L = 3.3K RES. (OPTION)

G--CAS (OPTION)



```

90 POKE 53279,0:IF (PEEK(53279)-6)>0 THEN 97
96 GOTO 300
97 STATUS #5,VAL
99 IF PEEK(747)+256*PEEK(748)<1 THEN 98
100 GET #5,X
120 IF X<>49 THEN 150
130 ? "RING"
140 GOTO 2000
150 IF X<>50 THEN 160
160 ? "BUSY"
170 GOTO 300
180 IF X<>51 THEN 90
190 ? "RESTART"
195 FOR I=1 TO 200:NEXT I
200 GOTO 400
300 PRINT #5;" "
310 GOTO 90
320 IF PEEK(747)+256*PEEK(748)<1 THEN 310
330 GET #5,X
335 IF X=51 THEN 400
340 STATUS #5,VAL
350 IF PEEK(747)+256*PEEK(748)>0 THEN 330
360 GOTO 310
400 PRINT #5;"A/"
410 GOTO 90
500 STATUS #5,VAL
600 IF PEEK(747)+256*PEEK(748)<1 THEN 500
700 GET #5,X
800 PUT #1,X
900 STATUS #5,VAL
1000 IF PEEK(747)+256*PEEK(748)>0 THEN 700
1100 RETURN
2000 PRINT "OPEN LINE"
2001 FOR I=1 TO 400
2005 POKE 53279,0:IF (PEEK(53279)-6)=0 THEN 90
2007 NEXT I
2009 PRINT "FREE LINE"
2010 PRINT #5;" "
2020 POKE 53279,0:IF (PEEK(53279)-6)>0 THEN 2020
2040 GOTO 90
3000 GET #5,X:PRINT CHR$(X):GOTO 3000

```



A special thanks to Paul Schnettler for his contribution to the User's Group and to the Newsletter at a time in which we can only state our condolences inadequately. Thank's Paul.



## SOFTWARE REVIEW

by Dave Divine

**MEGAFONT 3.1+** (\$24.95 by XLENT Software)

This utility is good for loading a variety of files and printing them out. You can use this to load in any ASCII or ATASCII file and then load up a font that can be created by creat-a-font and print it out. It is compatible with all printers. It can be used to translate ATASCII to ASCII and visa-versa. It will also print graphics screens created by micro painter, graphics master, Koala Pad, ATARI Touch Tablet, or your own graphics program. You can print out your images in three different sizes. This utility is a excellent for processing images and textfiles and then printing them out in tandem.

**TYPESETTER** (\$34.95 by XLENT Software)

This utility comes with two separate versions (one on each side of the disk). One side is for the 800 and 800-XL machine and the other side is intended for the 130-XE. This is probably the most advanced and best of XLENT's text handling software. There are two subhandlers in the package. One is a text editor; the other a graphics editor. From the text editor you can load up most standard graphics screens, and you can then add text from a built-in word processor. You can print upside down or backwards from right to left. You can scroll the text 1/8 of a character (or a whole character), either up or down or right or left (or a combination thereof), in any direction. While the screen is 80 columns wide a maximum of 40 columns is displayed at one time. Your text can be upto four times the normal character width and upto eight times the normal character height. The graphics editor is an excellent drawing utility which allows the user to move parts of his text screen to it and then edit the image



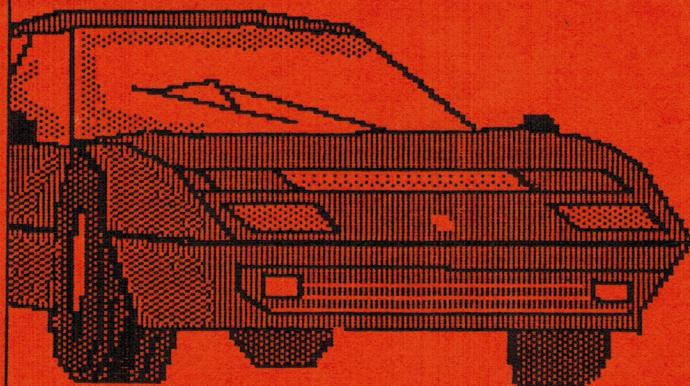
(using a joystick, drawing tablet or cursor keys), and then return the image back to the text editor. The image (and text), can then either be saved or printed out. It is one of the most sophisticated utilities available for the ATARI. It's only shortcoming is a total lack of compatability with any standard word processing utility such as ATARIWRITER, etc.

# **PAGE DESIGNER** (\$29.95 by XLENT Software)

This is very similar to TYPESETTER in many respects but it gives you 80 colums on the screen at once; and the two packages are compatible with one another. PAGE DESIGNER allows you to see all eighty columns at once, but does not allow you to see both the top half of the page and the bottom half of the page at the same time. You must switch back and forth between the top and bottom (two different, separate screens). Both PAGE DESIGNER and TYPESETTER allow you to load in any character set (font), you have; and they both come with an adequate supply of fonts on the disks. These three programs have been used to create most of the headlines and much of the artwork (excluding the drawings by P.K. and his KOALA pad), for this month's ish.

# **WANT ADS**

FOR SALE: 'PRINTSHOP' (Asking \$35.00; New!...call 263-5681 days or 241-7893 nights; ask for Al)



# **SIG NEWS** By Shirley C.

## **EDUCATION SIG**

Chair: Joe Imilkowski: 271-8614

Meeting: Thurs., Nov. 14th; 7:00 at 2320 Rowley Ave. (one block south of West High School). Lessons in "All you can do" in D.O.S. will be presented.

The Education SIG is now scheduling lessons in BASIC programming for the ATARI. These lessons will be structured activities working with prepared workbooks which will accommodate a variety of learning abilities and levels of expertise. Advanced level activities will be presented to advanced learners while beginning activities will be presented to beginning learners. A minium number

of students is required and classes will be held every other week. Interested members should contact the SIG chair to sign up in advance.

## **LANGUAGE SIG**

Chair: Joel Plutchak: 262-8525

Meeting: Sat., Nov. 9th. Please call for time and place. Members will be discussing the general direction of this SIG and will attempt to define member's interests and needs.

## **COMMUNICATIONS SIG**

Chair: Dave Mullinix: 249-6359

Meeting: Wed., Nov. 13th at John Caar's home (the usual place). Please call for agenda of the meeting if you are interested.

## **HARDWARE SIG**

Chair: Mike Redmond: 263-1584 (daytime); 233-2405 (evenings)

Meeting: Tues., Nov. 5th at 7:00 p.m., West High in the Science Lab (usual place).

The group will be looking at a 1200-XL with the idea of expanding it to 512k of RAM. The 800 TERMINATOR-XL will be demonstrated, reviewed and discussed. The new DOS for this machine and the the DOS for the RAM80-XL will also be looked at. In addition a 'Solder-nite' will be discussed for all of those members who are ready with their 256k chips and other paraphernalia who are waiting to upgrade their 'old' XL's.

## **EDITORIAL**

By A.L. Divine

The latest news coming through the grapevine is that ATARI will produce an expansion module for its XL-line of computers: 'Shades of De Je Vous'. No word on whether it is a 256k or 512k unit. "You stick with us Jack and we'll show you how it's done.!"

It would be nice to see our newsletter produced entirely on the ATARI. There are newsletters coming to us from around the country, some of which are produced entirely on computers. If any of our membership has any ideas on how this might be further accomplished I would appreciate their contacting me with their knowledge or ideas. Not everyone has access to an art studio such as is currently in use for our newsletter. The time will come when it will become necessary for our newsletter to be produced in a less sophisticated environment. This editor will be leaving the Madison area in approximately a year (or less), and our User's Group needs to think about what the Newsletter should be like at that time. I hope it will be computerized and automated...



#### NEWSLETTER INFORMATION

This newsletter is written and printed by members of the Madison Area Atari Users Group, an association of individuals with a common interest in using and programming Atari computers. The Madison Area Atari Users Group is not affiliated with the Atari corporation or any other commercial organization.

All articles are written and donated by the membership. Occasionally an article will be reprinted from another user group with appropriate credit to the author and the user group. We extend this same courtesy to those who would like to reproduce portions of this newsletter. All articles reflect the opinion of the author and do not necessarily reflect the opinions of the Madison Area Atari Users Group.

Your contribution of articles is actively encouraged. You may submit your articles on Atari compatible cassette or diskette or you can arrange with an editor to download your file via modem at 300 baud. Please delete control codes imbedded in the text which you submit. Deadline for articles in the 25th day of each month for inclusion in the next issue.

Write Madison Area Atari Users Group Newsletter, P.O. Box 56191, Madison, WI 53705 for more information.

#### MEMBERSHIP INFORMATION

Membership is open to individuals and families who are interested in using and programming Atari computers. Your membership includes a subscription to this newsletter and access to the group's public domain cassette, diskette, and publication libraries. In addition to attending group functions and checking out materials from the libraries, members are entitled to vote in club elections and to hold elected position in the organization.

#### MEETING INFORMATION

Madison Area Atari Users Group meetings are held once each month. The meetings are currently being held in the IMC of West High School, Madison, WI. Meetings start promptly at 7:00 p.m. on the second Tuesday of each month.

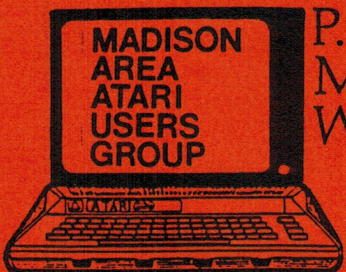
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